PERMIT TO CONSTRUCT/OPERATE EVALUATION (LITHOGRAPHIC PRINTING PRESS)

Applicant's Name	**GRAPHIC PACKAGING INTERNATIONAL, INC.**
Company I.D.	**157259**
Mailing Address	**1600 BARRANCA PARKWAY, IRVINE, CA 92606**
Equipment Address	**SAME AS ABOVE**

EQUIPMENT DESCRIPTION

Application No. 545698 (New Construction)

LITHOGRAPHIC PRINTING LINE CONSISTING OF:

1) PRINTING PRESS, KBA, MODEL # RAPIDA 105, SIX COLORS, AQUEOUS COATER, 40 INCH WIDE SHEET FED.

2) COATER STATION

3) INFRARED DRYING SYSTEM, TOTAL UP TO 162 KW.

4) ULTRAVIOLET CURING SYSTEM, TOTAL UP TO 211.2 KW.

Application No. 545697

DE MINIMIS SIGNIFICANT PERMIT REVISION

HISTORY

Graphic Packaging International Inc. submitted the above permit application to install a new sheet-fed, IR dry, UV cure lithographic printing press at their Irvine facility. This press will be relocated from their sister facility, which is located outside the District jurisdiction.

Graphic Packaging International, Inc. has a number of active permits from the District to operate different equipment, such as lithographic printing presses, baghouse, paper conveying, etc. under the District I.D. # 157259 The applicant has all the printing lines either IR-dry/UV cure or air dry lithographic printing lines. This facility was previously operated by Smurfit-Stone Container (I.D. 7089) and Bluegrass Folding Carton (I.D. 148535).

A facility-wide VOC emission cap of 2,165 pounds per day has been established for this facility. The company has requested to operate this press within the VOC facility cap of 2,165 pounds per day. The applicant has not requested any facility-wide VOC emission increase under this project. Thus, this project will not require any VOC emission offsets for this project. The company is proposing to use Rules 1130 and 1171 compliant inks, fountain solutions, and clean-up solvents on this press. This complies with the current BACT requirements of the IR dry and UV cure lithographic printing operation. The District inspection report dated August 15, 2012 indicated compliance with all the District rule requirements.

The data submitted by the applicant indicated maximum 156 lbs/day VOC emissions from this equipment. The applicant requested to use materials on this equipment with Rule 1401 toxic compounds (most of them trace amounts), such as styrene, acrylic acid, ammonia, ethylene glycol, formaldehyde, isopropyl alcohol, copper & copper compounds, naphthalene, hydrochloric acid, zinc & zinc compounds, sodium hydroxide, phosphoric acid, ethylene glycol monobutyl ether, manganese compounds, 1,4 dioxine, benzene, ethyl benzene, ethylene oxide, hexachlorobenzene, propylene glycol monomethyl ether, propylene oxide, xylene and toluene. Rule 1401 is triggered for this press. However, it is expected to comply with Rule 1401 requirements.

The district data did not show any notices of violation or notice to comply issued against this facility in the last two years. Also, there were no records of any complaints for visible emissions or odor nuisance in the district database in the last two years.

The facility is located within an industrial area. It is not located within 1000 feet from any school. The cancer risk from the toxics is expected to be less than 1 in a million. However, there will be VOC emission increase above the threshold limit for this equipment. Hence, this application will require a public notification per Rule 212.

Graphic Packaging International, Inc. is a Title V facility. A Title V permit was issued to this facility on September 2, 2011. This proposed first permit revision is considered a "de-minimis permit revision" to the Title V permit, as described in Regulation XXX evaluation.

PROCESS DESCRIPTION

Graphic Packaging is a large sized folding carton manufacturing facility and a leading supplier to food beverage and other consumer products companies. The folding carton manufacturing process involves sheeting, printing, cutting and finishing.

The sheeting stage involves conversion of rolls of paperboard to specific sheet size tailored to specific press and the type of the carton. The sheeted paperboard is printed on the lithographic printing presses according to customer's specifications. In the lithographic press, each printing plate cylinder gets wetted by fountain solution while rotating. The fountain solution provides hydrophilic properties on the plate for non-image areas, so that the ink adheres to image area only. The ink is then transferred (or offset) to the rubber blanket cylinder. The blanket then transfers the inked image to the paperboard. The primary emissions from this operation are VOCs from the use of inks, fountain solution and cleaning solvents. The printed paperboards are fed to an IR oven to dry the inks. The printed paperboard is then passes through UV coating units to cure the UV inks/coatings. The final coating is applied on a silicone coater, where an aqueous silicone emulsion solution is applied to provide the slip on the sheets.

Graphic Packaging mostly uses low VOC materials on the press. The water-based coating maximum VOC is 0.13 lb/gal, while the UV curing coating maximum VOC is 0.03 lb/gal. The Sun Chemical lithographic inks with 1.5 lbs/gal (maximum) VOC content will be used on the press. The fountain solution material is also supplied by Sun Chemicals, which has a maximum material VOC content of 0.19 pounds per gallon. The clean-up material has 0.8 lbs/gal material VOC content. Copies of the MSDSs for inks and solvents are in the file. They comply with Rules 1130 and 1171 requirements.

OPERATING HOURS

Average/Maximum: 24 hr/day, 7 day/week, 52 weeks/year

EMISSION CALCULATIONS

Emissions from this facility are mostly VOC. The VOC emission sources are primarily organic solvents contained in inks, fountain solutions and washes. The company plans to use conventional and UV-curable printing inks and aqueous/UV-curable coatings on the press. Only 5% to 20% (conservative) of the solvent contained in the ink and varnish is emitted in the drying process. It was assumed that all of the solvents in the fountain solution and washes are released to the atmosphere. Some of the higher VOCs and quantities were used for the emission calculations for the future higher VOC containing products and usage.

Lithographic Press								
A/N 545698	maximum	normal				ink/varnish	fountain	wash
hr/dy	24	24			Emission factor	100%	100%	100%
dy/wk	7	7						
wk/yr	52	52			Control efficiency	0%		
	VOC	ave	max		ave VOC	max VOC		
	(lb/gal)	(gal/dy)	(gal/dy)		(lb/dy)	(lb/dy)		
ink #1	0.3	2	20		0.60	6.00		
ink #2	0.3	2	20		0.60	6.00		
ink #3	0.1	2	20		0.20	2.00		
ink #4	0.21	2	20		0.42	4.20		
PMS colors	0.25	4	32		1.00	8.00		
Inks & Coating	0.01	15	40		0.15	0.40		
	0	0	0		0.00	0.00		
	0	0	0		0.00	0.00		
neous. Coating	0.5	10	30		5.00	15.00		
	0	0	0		0.00	0.00		
Fountain Soln.	0.67	10	22		6.70	14.74		
blanket wash	0.83	10	20		8.30	16.60		
240 rollerwash	0.83	25	100		20.75	83.00		
	0	0	0		0.00	0.00		
NSR--->>>		max	max	30-day		AEIS--->>>	ave	ave
		(lb/hr)	(lb/dy)	(lb/dy)			(lb/hr)	(lb/yr)
ROG (R1)		6.50	155.94	NA			1.82	NA
ROG (R2)		6.50	155.94	155.94			1.82	15914.08

RULE 1401 TOXIC EMISSIONS

The company had submitted a list of the District Rule 1401 toxic compounds present (some in trace amounts) in the materials (see the following table) which may be used in their lithographic printing operations at the facility . The past usage per press indicated a very low emission rate of these toxic air contaminants. However, a conservatively higher emission level will be used to calculate Health Risk Assessment (HRA). Some of the solid non-volatile toxics are also present in the inks and coatings. They do not become air-borne in the printing operation. The applicant provided toxic emissions for this press for possible maximum emissions.
The following maximum toxic emissions are per current usage levels.

Material	*Toxic*	*Toxic*	*Tier 1 Emission*	*Tier 1 Emission*

	Emissions (lbs/yr)	*Emissions (lbs/hr)*	*levels at 50 meter receptor (lbs/year)*	*levels at 50 meter receptor (lbs/hr)*
1,4 dioxine	4.14E-05	6.89E-09	11.1	3
benzene	5.45E-06	9.08E-10	2.99	1.48
Butyl cellosolve	8,355	1.39	---	14
Ethyl benzene	2.93E-08	4.89E-12	34.4	---
Ethylene oxide	4.14E-05	6.89E-09	0.966	---
formaldehyde	0.0892	1.49E-05	14.3	0.055
hexachlorobenzene	0.00103	1.72E-07	0.166	---
Propylene glycol monomethyl ether	0.211	3.52E-05	607,000	---
Propylene oxide	4.136E-05	6.89E-09	23	3.1
ammonia	700.8	0.08	17,300	3.2
styrene	4.14E-05	6.89E-09	78,000	21.0
Acrylic acid	2.93E-08	4.89E-12	----	6.0
Ethylene glycol	2.93E-08	4.89E-12	34,700	---
Isopropyl alcohol	4.14E-05	6.89E-09	607,000	3.2
naphthalene	4.14E-05	6.89E-09	2.49	---
xylene	0.00103	1.72E-07	60,700	22.0
toluene	0.00103	1.72E-07	26,000	37.0
Copper compounds*				
Zinc compounds*				
Manganese compounds*				
Hydrochloric acid*				
Phosphoric acid*				
Sodium hydroxide*				

* No emissions expected due to negligible V.P. or they are solids applied on a blanket

A Tier 2 Risk Assessment was performed to determine the health risk from the toxic air contaminants expected to emit from the press at current usage levels. The assessment calculated less than 1 HIA/HIC risk from these toxic air contaminant emissions. Also, it calculated a cancer risk of 0.00000000006 in a million (5.99E-11) for the residential receptor and 0.00000000127 in a million (1.27E-09) for a commercial receptor. The assessment demonstrated expected compliance with the Rule 1401 requirements.

The following maximum toxic emissions are expected in the future with the increase in production.

Material	*Toxic*	*Toxic*	*Tier 1 Emission*	*Tier 1 Emission*

	Emissions (lbs/yr)	*Emissions (lbs/hr)*	*levels at 50 meter receptor (lbs/year)*	*levels at 50 meter receptor (lbs/hr)*
1,4 dioxine	1.30	1.48E-04	11.1	3
benzene	0.36	4.11E-05	2.99	1.48
Ethyl benzene	4.10	4.68E-04	34.4	---
Ethylene oxide	0.12	1.37E-05	0.966	---
formaldehyde	1.70	1.94E-04	14.3	0.055
hexachlorobenzene	0.02	2.28E-06	0.166	---
naphthalene	0.30	3.42E-05	2.49	---
Propylene oxide	2.80	3.20E-04	23	3.1
Propylene glycol monomethyl ether	0.211	3.52E-05	607,000	---
Butyl cellosolve	8,355	0.96	---	14
ammonia	700.8	0.08	17,300	3.2
styrene	4.14E-05	6.89E-09	78,000	21.0
Acrylic acid	2.93E-08	4.89E-12	----	6.0
Ethylene glycol	2.93E-08	4.89E-12	34,700	---
Isopropyl alcohol	4.14E-05	6.89E-09	607,000	3.2
xylene	0.00103	1.72E-07	60,700	22.0
toluene	0.00103	1.72E-07	26,000	37.0
Copper compounds*				
Zinc compounds*				
Manganese compounds*				
Hydrochloric acid*				
Phosphoric acid*				
Sodium hydroxide*				

* No emissions expected due to negligible V.P. or they are solids applied on a blanket

A Tier 2 Risk Assessment was performed to determine the health risk from the toxic air contaminants expected to emit from the press at future usage levels. The assessment calculated less than 1 HIA/HIC risk from these toxic air contaminant emissions. Also, it calculated a cancer risk of 0.00000000315 in a million (3.15E-09) for the residential receptor and 0.0000000668 in a million (6.68E-08) for a commercial receptor. The assessment demonstrated expected compliance with the Rule 1401 requirements.

RULES AND REGULATIONS

¤***RULE 212, PUBLIC NOTIFICATION***
v***SECTION 212(c)(1):***

This section requires a public notice for all new or modified permit units that may emit air contaminants located within 1,000 feet from the outer boundary of a school. This source is not located within 1,000 feet from the outer boundary of a school. Therefore, public notice will not be required by this section.

v ***SECTION 212(c)(2):***

This section requires a public notice for all new or modified facilities which have on-site emission increases exceeding any of the daily maximums as specified in subdivision (g). As shown in the following table, there are no emission increases since the facility VOC cap will remain the same. Therefore, this application will not be subject to this section.

LB/DAY	CO	NOX	PM_{10}	ROG	Lead	SOX
MAX. LIMIT	220	40	30	30	3	60
INCREASES	0	0	0	0	0	0

v ***SECTION 212(c)(3):***

Please, see Rule 1401 evaluation section. MICR is expected to be less than one in a million and HIA/HIC less than one. Therefore, this application will not be subject to this section.

v ***SECTION 212(g):***

This section requires a public notice for all new or modified sources which have on-site emission increases exceeding any of the daily maximums as specified in this subdivision. As shown in the following table, there are emission increases above the daily maximum limits specified by Rule 212(g). Therefore, this application will be subject to this section.

LB/DAY	CO	NOX	PM_{10}	ROG	SOX	Pb
MAX. LIMIT	220	40	30	30	0	3
INCREASES	0	0	0	156	0	0

¤*RULES 401 & 402, VISIBLE EMISSIONS & NUISANCE*

AQMD database has no records of any visible emissions or nuisance complaints against this company. Compliance is expected.

¤ ***RULE 1130, GRAPHIC ARTS***

v ***SECTION (C)(1), VOC CONTENT OF INKS***

This paragraph limits the maximum VOC content of printing inks, coatings, and adhesives at 300 g/l less water and exempt compounds. The applicant will comply with these requirements by using inks and coatings with the following VOC content less water and exempt compounds.

Materials Used	Rule VOC Limit (gram/liter)	VOC as applied (gram/liter)	Compliance
Ink Systems Inc.& Flint Inks	300	180	Yes
Aqueous Coating	300	60	Yes
UV Coating (UVC-1150)	300	12	Yes
UV Coating (UVC-5115)	300	12	Yes

¤

RULE 1130, GRAPHIC ARTS

v *SECTION (C)(2), VOC CONTENT OF FOUNTAIN SOLUTION*

This paragraph limits the maximum VOC content of fountain solutions at 100 g/l or 0.83 lbs/gal with chilled fountain. The applicant will comply with these requirements by using fountain solution with the following VOC content. The press has a chilled fountain.

Materials Mixed	Volume	VOC Content (lb/gal)	VOC Content Lbs	VOC (lb/gal)	Rule VOC Limit (lb/gal)	Compliance
FS Conc	3 oz.	7.9	0.185			
FS Conc	3 oz.	7.9	0.185			
Water	125 oz	0.00	0.00			
Total	131 oz.		0.37	0.39	0.83	Yes

¤ ***RULE 1171, SOLVENT CLEANING OPERATIONS***

According to MSDS provided by the applicant, clean-up material will comply with the Rule requirements.

Material Used	Rule VOC Limit (gm/liter)	VOC as Applied (gm/liter)	Compliance
Explorer Alpha 8	100	96	Yes
Tersus Clean Low VOC 609	100	50	Yes

REGULATION XIII

¤

RULE 1303(a), BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

VOC EMISSIONS

The use of Rule 1130 compliant inks and coatings and UV inks and coatings, fountain solution with less than 8% VOC by volume, and blanket/roller wash less than 100 g/l VOC will satisfy BACT requirements.

The following table for fountain solution shows <8% VOC content. Thus, equipment is expected to comply with the BACT requirements.

Materials Mixed	Volume	VOC Content (lb/gal)	VOC Content Lbs	VOC Density Lb/gal	VOC Volume gal	VOC Volume Percentage
FS Conc	3 oz.	7.9	0.185	7.91	0.023	
FS Conc	3 oz.	7.9	0.185	7.91	0.023	
Water	125 oz	0.00	0.00	0	0	
Total	128 oz.		0.37		0.046	4.6

¤ ***RULE 1303(b)(1), MODELING***

No detailed modeling analysis is required for VOC emissions only.

¤ ***RULE 1303 (b)(2), EMISSION OFFSETS***

Emission offsets are not required for this project since no net emission increases for criteria pollutants from this facility under this project. This equipment will be operated under the same facility cap of 2165 lbs/day.

¤ ***RULE 1401, NEW SOURCE REVIEW OF CARCINOGENIC AIR CONTAMINANTS***

As reported in the above evaluation report, the MICR cancer risk is expected to be <1 in a million and HIA/HIC to be less than 1 (see attached calculation spreadsheets).

REGULATION XXX

This facility is not in the RECLAIM program. The proposed project is considered as a "de minimis significant permit revision" to the Title V permit for thyis facility.

Rule 3000(b)(6) defines a "de minimis significant permit revision" as any Title V permit revision where the cumulative emission increases on non-RECLAIM pollutants or hazardous air pollutants (HAP) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30

NOx	40
PM10	30
SOx	60
CO	220

To determine if a project qualifies for a "de minimis significant permit revision", emission increases for non-RECLAIM pollutants and HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. Since the cumulative emission increases resulting from all permit revisions are not greater than any of the threshold levels, this proposed project is considered as a "de minimis significant permit revision". The proposed project is the 1st permit revision to the Title V renewal permit issued to the facility on September 2, 2011. This revision will include an inclusion of a permit to construct as noted below. The cumulative emission increases resulting from this proposed permit revision are summarized as follows:

Revision	HAP	VOC	NOx	PM_{10}	SOx	CO
1st Permit Revision, Deminimis Significant. Add new Lithographic IR/UV printing press (A/N 545698)	0	0	0	0	0	0
Cumulative Total	0	0	0	0	0	8
Maximum Daily	30	30	40	30	60	220

CONCLUSIONS/RECOMMENDATIONS

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a "de minimis significant permit revision", it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j) in conjunction with the Rule 212 public notice. If EPA does not raise any objections within the review period and upon completion of the Rule 212 public notice period, a revised Title V permit will be issued to this facility with the addition of a Permit to Construct for the new lithographic printing press.